

AMENDMENTS TO THE CLAIMS

1-29. (Canceled)

30. (Previously presented) A system for interactive interstitial photodynamic or photothermal tumor therapy or tumor diagnosis of a human, comprising; at least one first light source for emission of light within the wavelength-range of infrared (IR), visible or ultraviolet light; at least one light detector, for detection of light; and a plurality of optical fibers adapted to conduct light to or from a tumor site at or in said human, wherein the optical fiber is in use employed as a transmitter or a receiver for conduction of light to or from the tumor site for therapy or diagnosis of a tumor at the tumor site; wherein at least one distributor adapted to distribute said light from at least the first light source to the tumor site, wherein the distributor comprises at least one longitudinal translatory element having a plurality of said optical fibers attached thereto and being arranged in such a manner that light is coupled in different constellations to or from said optical fibers for a diagnostic or therapeutic mode of said systems by longitudinal translatory movement of said longitudinal translatory element between pre-determined positions for aligning said optical fibers with a corresponding coupling element for transmitting or receiving said light to or from said light source or said light detector.

31. (Currently amended) The system according to claim 26 30, wherein said system comprising at least one second light source for emission of therapeutic light through at least one of said optical fibers via said distributor via said longitudinal translatory element and said corresponding opposing coupling element to said tumor site.

32. (Currently amended) The system according to claim 26 30, further comprising a plurality of first optical fibers arranged for conducting light to or from the tumor site, a plurality of second optical fibers arranged for delivering light from at least one light source or transmission of light to said at least one light detector, and wherein said distributor is a distributor for distribution of light from at least one light source to the tumor site and/or from the tumor site to said least one light detector, wherein the opposing coupling element is a second longitudinal translatory element, and being arranged in such a manner that light is coupled in

different constellations by translatory movement of a first if said translatory elements between pre-determined positions relative to the other said translatory elements.

33. (Currently amended) The system according to claim 28 32, wherein each translatory element has holes arranged for receiving said optical fibers and that corresponding holes on the two translatory elements are equidistantly arranged on a straight line, and wherein said translatory elements are configured for transmitting light between the translatory elements.

34. (Currently amended) The system according to claim 29 33, wherein first ends of the first optical fibers are fixed in the holes of a translatory displacement element and first end of second optical fibers are fixed in the holes in the second translatory element, wherein the first and second optical fibers are connectable to each other in different constellations through said longitudinal translatory movement between pre-determined positions of the longitudinal translatory displacement element and the second translatory element relative each other.

35. (Currently amended) The system according to claim 26 30, further comprising two first and second flat discs in close proximity to each other, wherein said discs are turnable relatively relative to each other, each disc having holes arranged in a circular line, wherein the circle radius on one the first disc equals the circle radius on the other second disc and wherein the holes in one the first disc are equally distributed on a circle line with an angular separation of  $V1=(360/n_1)$  degrees,  $n_1$  being the number of holes, and the holes in the other disc are equally distributed on the circle line with an angular separation of  $n_2=(360/n_2)$  degrees, wherein  $n_2=m \times n_1$ , and wherein  $m$  is a multiple, which yields  $n_2$  as an integer  $> 1$ , and wherein first ends of third optical fibers are fixed in the holes of the first disc and first ends of fourth optical fibers are fixed in all holes of the second disc except for one, whereby the third and the fourth optical fibers fixed to the first and second discs by rotation of the first turnable disc relative to the other second disc are connectable to each other in different constellations, and wherein said longitudinal translatory element is arranged substantially radially outward outwardly movable and integrated with said other first disc to couple between [[a]] said plurality of said first optical fibers attached to said longitudinal translatory element to one of said third optical fibers fixed to said second disc.

36. (Currently amended) The system according to claim 34 35, wherein  $n_1$  is the number of holes in the first disc of the distributor,  $n_1=6$  and  $m=2$ , yielding  $n_2=12$  holes in the second disc of the distributor.

37. (Currently amended) The system according to claim 32 36, wherein every other fourth optical fiber is part of a first series of fourth optical fibers and that an optical fiber conductor in said first series of fourth optical fibers conductors being arranged for emitting light from the light source and the other optical fibers in said first series of fourth light conductors being arranged for transmission of light to the light detector.

38. (Currently amended) The system according to claim 32 36, wherein first optical fibers being connected to diagnostic light sources, such that the longitudinal translatory element in said other disc couples one of said diagnostic light source to one of said third optical fibers in said first disc.

39. (Currently amended) The system according to claim 26 30, wherein the diagnostic light source ~~comprising~~ comprises a beamsplitter.

40. (Currently amended) The system according to claim 35 39, wherein light fiber is arranged between a dichroic beamsplitter and the light detector.

41. (Currently amended) The system according to claim 36 40, wherein fluorescence is recorded through the same optical fiber as the one transmitting light to the tumor site.

42. (Currently amended) The system according to claim 26 30, wherein ~~the third optical fiber~~ second at least one of the ends of the optical fibers are is treated by a material with temperature sensitive fluorescence emission.

43. (Currently amended) The system according to claim 34 35, wherein every second of said fourth optical fibers is part of a second series of fourth optical fibers arranged for emission of light from the light source.

44. (Currently amended) The system according to claim 27 31, wherein the therapeutic light source is a light source for coherent light of a single fixed wavelength.

45. (Currently amended) A system according to claim 26 30, wherein the distributor comprises means for locking the light distributor into pre-determined transversal and/or azimuthal positions.

46. (Currently amended) The system according to claim 38 42, wherein one or several of the optical fibers which are treated with the material with a temperature sensitive fluorescence emission are in use measuring the temperature at the tumor site, the light which is sent to the tumor site in use is heating the tumor site, and the intensity of the light is controllable by the measured temperature in order to regulate the temperature of the tumor site at the individual optical fibers.

47. (Currently amended) The system according to claim 26 30, wherein said longitudinal translatory displacement element is an optical sledge.

48. (Currently amended) The system according to claim 26 30, wherein at least least one stepping motor or at least one servo system moves said elements of said light distributor relative to each other.

49. (Currently amended) The system according to claim 26 30, wherein said operation modes are modes of the system comprised in the list of: interactive interstitial photodynamic tumor therapy, photothermal tumor therapy using hyperthermia, and tumor diagnostics, whereby these operation modes in use are alternated during the same occasion of treatment of said tumor site.

50. (Currently amended) The system according to claim 27 31, wherein said operation modes of said system comprise a diagnostic operation mode, wherein one diagnostic light source is coupled via a first longitudinal translatory element to said first optical fibers transmitting diagnostic light to said site and the remaining first optical fibers are coupled to a light detector, and a therapeutic operation mode, wherein said therapeutic light sources are coupled to said first optical fibers transmitting therapeutic light to said site.

51. (Currently amended) The system according to claim 46 50, wherein said at least one second longitudinal translatory element switches between the operating modes.

52. (Canceled)

53. (Currently amended) A method for interactive interstitial photodynamic tumor therapy of photothermal tumor therapy or diagnosis of a human, wherein at least one light detector and a plurality of optical fibers are connected to a tumor site and the optical fibers are used as a transmitter or a receiver for conduction of light to or from a tumor site for diagnosis and therapy of a tumor at the tumor site, wherein switching between tumor therapy and tumor diagnostics is achieved in an automated way by switching light fibers between constellations by means of a light distributor comprised in the system according to claim 26, 30 and that the results from the diagnostics control the therapy process by regulating a therapeutic therapeutic light intensity depending on the results of the diagnostics until an optimal treatment of the tumor site is achieved.

54. (Currently amended) The method according to claim 49 53, wherein alternatingly utilizing interactive interstitial photodynamic tumor therapy, photothermal tumor therapy using hyperthermia, and tumor diagnostics are alternately used during the same occasion of treatment of said tumor site.